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SURVEY OF SOVIET HEAVY INDUSTRY (15)

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SURVEY OF SOVIET HEAVY INDUSTRY (15)

This is a series report, published approximately biweekly, which contains items of interest on Soviet heavy industry as reflected in articles, short news items, announcements, etc., appearing in various USSR and other publications. The items contained in this report fall under the broad categories listed below in the table of contents.

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MACHINE TOOLS

Milling Machines

The Vil'nyus Zhal'giris Plant has produced the first models of small automated vertical and horizontal milling machines. The new machines are designed for machining small parts and will be used extensively in the instrument making, radio, and electrical engineering industries. The plant will organize the series production of the new machine tools in 1961. (Vil'nyus, Sovetskaya Litva, 14 September 1960)

Surface Grinding Machines

The Orsha Krasnyy Borets /Machine Tool Building/ Plant produced peat machines and grinding equipment six months ago. It now produces 3B71 surface grinding machines. (Minsk, Sovetskaya Belorussiya, 13 September 1960)

Moscow Machine Tools

The Moscow Krasnyy Proletariy Plant, Moscow Machine Tool Building Plant imeni Ordzhonikidze, and Moscow Stankokonstruktsiya Plant are located in the Oktyabr'skiy Rayon of Moscow.

The Moscow Stankokonstruktsiya Plant is now doing work on the development of machine tools with programmed operation. The Moscow Machine Tool Building Plant imeni Ordzhonikidze produces high-production metal-cutting unit-type, special, and large single-design machine tools and automatic lines. It will produce 220 automatic lines during the Seven Year Plan. (Moscow, Moskovskaya Pravda, 21 September 1960)

Bearing Tools

Not long ago the Moscow Stankoliniya Plant began to convert to the production of new automatic lines and machine tools for the manufacture of bearings. In 1960 the plant should produce 13 automatic lines and dozens of machine tools; and in 1961, 20 lines and many machine tools. (Moskovskaya Pravda, 17 August 1960)

Automatic Lines

The Moscow Stankoliniya Plant in the Zhdanovskiy Rayon is being remodeled and will be converted into one of the largest Soviet plants for the production of automatic lines. (Moscow, Vechernyaya Moskva, 16 September 1960)

New Grinding Machine

A shop of the First State Bearing Plant will soon begin assembling a new 3B-182 grinding machine for machining bearing rings. It was developed by the Experimental Scientific Research Institute of Metal Cutting Machine Tools. (Vechernyaya Moskva, 15 September 1960)

New Automatic Lathe

The Kiev /Machine Tool and Automatics/ Plant imeni Gor'kiy has finished tests on an eight-spindle automatic lathe for machining drive-shaft bearings of motor vehicles and tractors. The lathe has a productivity of one part every 1.8 seconds. The plant is producing seven more such lathes. They will be installed in an automatic line at the Moscow First State Bearing Plant where an automated shop is being developed. (Ekonomicheskaya Gazeta, 16 September 1960)

Drill Machining

The Orenburg Tool Plant (Orenburgskiy instrumental'-nyy zavod) has designed milling cutters for machining the grooves of new drills. An experimental consignment of these drills with diameters of 17.1 to 32 mm has been manufactured. (Moscow, Stanki i Instrument, December 1960, page 33)

Automatic Machine Tools

The Odessa Plant imeni XVI Parts"yezd has begun the series production of automatic machine tools. It manufactures the A-100-0 automatic. (Trud, 18 September 1960)

Vertical Boring Mill

The Kolomna Heavy Machine Building Plant has produced a large vertical boring mill which is being installed in the hydraulic turbine shop of the Khar'kov Turbine Plant. It will machine parts up to 22 meters in diameter and weighing hundreds of tons. (Leninskoye Znamya, 22 September 1960)

Metal-cutting Machine Tools

The Armenian machine tool building industry has specialized in the production of low-metal-consumption high-precision machine tools. The machine tool building plants of the republic produced 2,683 metal-cutting machine tools in 1959. The Armenian SSR now produces about two percent of the metal-cutting machine tools manufactured in the USSR. By the end of the Seven Year Plan, this percentage will increase to 8.4 percent. (Yerevan, Ivestiya-Obshchestvennyye Nauki, No 11, November 1960, page 20)

Automatic Lathes

Metal-cutting Machine Tools

The Khabarovsk Automatic Lathe Plant yesterday began series production on the new 1B-36 automatic lathe. This machine tool machines a complex configuration part in one minute with more than 10 cutting tools with an accuracy of up to 1/100 mm, without any manual operations. (Ekonomicheskaya Gazeta, 6 October 1960. Full translation) percent of USSR metal-cutting machine tools manufactured in the USSR. By the end of the Seven Year Plan, this percentage will increase to 8.4 percent. (Yerevan, Ivestiya-Obshchestvennyye Nauki, No 11, November 1960, page 20)

Copying-planing Machine

The collective of the Gorn' Machine Tool Plant imeni Kirov produced the USSR's first copying-planing machine equipped with a so-called tracer system and programmed control. The machine tool has been shipped to the Leningrad Metal Plant and is designed for machining turbine vanes. Soon the Gorn' machine tool builders will supply these units to all plants producing hydroelectric power equipment. (Trud, 21 September 1960. Full translation)

Gear-cutting Machine

The Saratov Heavy Gear-cutting Machine Plant has produced a new 525-B automatic machine for rough-cutting conical gears, equipped with an automatic feeding mechanism. It is approximately one and one half times more productive than the basic 525 machine tool.

Tests are being run on the new multi-purpose 5A27C4 semi-automatic machine tool. It was created by a group of plant designers under the leadership of Chief Designer N. Kabatov. The machine tool is designed for cutting wide-range conical gears with six degrees of accuracy. The productivity of the multi-purpose semi-automatic machine tool is 35 to 40% greater than the obsolete 5A27C1. (Ekonomicheskaya Gazeta, 30 August 1960. Full translation)

Automatic Grinding Line

Four automatic operators remove crankshafts from the conveyor and transfer them to four automatic machine tools. The machine tools subsequently grind connecting rod necks on the shafts. A finished part comes off the line every 90 seconds. This is the automatic grinding line which was designed by the engineers of the Odesskiy Sovnarkhoz and produced by the Khar'kov Machine tool builders. It is designed for machining SMD-1 diesel crankshafts. Two of these lines -- for rough machining and finishing -- will save more than one million rubles per year. (Kiev, Pravda Ukrainy, 18 September 1960. Full translation)

Machine Tool Production Increase

The great "Krasnyy Proletariy". These three words are perhaps the most popular among the machine tool builders of the "Krasnyy proletariy" Plant. Behind them lies a mighty program of expansion in 1961-1963. New construction will provide 1/3 more production space. The plan for plant expansion includes the construction of a large new mechanical assembly shop. This will increase semi-automatic vertical multi-spindle lath production by more than six times. It is planned to equip the large new mechanical assembly shop for producing high accuracy lathes. All the plant's auxiliary facilities will undergo major reconstruction. This will make it possible to increase automatic machine tool production to a considerable degree in coming years as well as the production of other complex machinery for the country's enterprises. (Vechernyaya Moskva, 10 September 1960. Full translation)

New Cutter Machine

A large and unique machine, the MV15C2, designed for producing particularly accurate large-diameter cutters used in cutting worm gears, has been produced by the Jig Drilling Machine Plant. This newcomer to the machine tool industry has already been shipped to the Leningrad Kirov Plant. (Vechernyaya Moskva, 10 September 1960. Full translation)

Truck Parts Machining

Our plant, which is growing from day to day, is being equipped with the metal-cutting and metal machining equipment. In the new shop which has just been completed automatic lines for machining truck parts are being set up. We are glad to see among the equipment suppliers our close friends and comrades from the republic capital, Minsk. Several machine tools were furnished to us by the Minsk Automatic Line Plant. They naturally look pretty good, and their design is unrepachable. However, we are extremely surprised that the plant collective does not value the reputation of its brand, for it produces some machine tools carelessly, with major imperfections. For example, Model AM-462, AM-463 and AM-464 aggregate machine tools are produced with great divergences in their mechanisms. Since this is the case, the parameters of the parts being machined do not hold up.

All parts of the drum mechanisms are "adjusted" in such a manner that the clearance between them is as much as 5 mm. During operations emulsion penetrates into the drum through these cracks, together with fine shavings. As a

Truck Parts Machining (cont'd)

result the moving parts of the mechanisms sometimes jam. Emulsion feeding is done incorrectly on all the machine tools. The emulsion is fed to the drill at a 75-80 degree angle, and under conditions of horizontal drilling the tool is not assured of cooling. The electric feed lines are poorly insulated from the emulsion. On the AM-464 machine tool the reduction gear of the overtake mechanism has broken down four times within a month. The poor construction of the machine tools is also demonstrated by the fact that if any of the caps are unscrewed, only one of the bolts is seated correctly, while the others are crooked. It is true that these machine tools have been produced by the plant for the first time, and they are basically unique machines. However, this does not justify carelessness and imperfections. Every machine tool and every product should be only of excellent quality. (Sovetskaya Belorussiya, 18 September 1960. Full translation)

Hard Alloy Tools

A. Lopukhov, brigadier of the brigade of Communist Labor of the Thermal Shop of the Frezer Plant

We, worker-tool makers, have nothing but welcome words for a hard alloy tool. Unfortunately the introduction of such a tool is sometimes difficult. The problem of soldering hard alloy plates for tools has not been solved. Almost 5% of the plates receive cracks in this operation and become useless. This is terrible! Another shortcoming is the fact that hard alloy plates usually come to us from the metallurgical industry in only one size. We must reach a point whereby a plate of the necessary size will correspond to each drill diameter. This will expand the use of hard alloy tools.

A. Novgorodov, Chief Engineer of the Hard Alloy Combine

Our collective is working to increase the production

Hard Alloy Tools (Cont'd)

of hard alloy shaped tools. This is possible if we introduce into our shops large-scale automation and mechanization. The deadline for completion of work-1963. However, doubts arise: will it be possible to introduce high-quality automation and mechanization? We should mention that the designing of assembly lines for producing tools of hard alloys is new to us. Our appeals for aid to the specialists of the State Committee on Automation and Machine Construction have not yet given the hoped for results. The problems of producing press-moulds for hard alloy tools have not yet been solved. At present each enterprise which receives tools from us must produce press-moulds for us in exchange. This is hardly expedient. It is necessary to organize the central production of press-moulds.

A. Komarov, chief of the Metallurgical Industry Administration of the Moscow City Sovnarkhoz

The hard alloy industry should begin series production on shaped, specialized technological tools. For this purpose it was resolved to form a special shop at the

Hard Alloy Tools (cont'd)

Moscow Hard Alloy Combine. It was to begin operations by the end of 1961. But the RSFSR State Planning Commission has not yet assigned the necessary funds. Another, no less important problem for us is the lack of powerful vacuum pumps which are essential for creating uniform alloys. The scientific research institutes of the State Scientific Technical Committee of the USSR unfortunately have not yet worked out the design for this equipment. Without it we shall be able to conduct no work in the future on the unification of hard alloys. (Moskovskaya Pravda, 20 September 1960. Full translation)

Specialized Forge Shop

There are many industrial enterprises in the Dmitrovskiy Rayon, but not one of them has a decent forge shop, even with the slightest mechanization. The milling machine tool plant forge, for example, is situated in an old, broken-down building. Its walls are held up by external shoring, the roof leaks and there is no ventilation. The shop has no forgings storage facilities nor any sanitary facilities. 20 blacksmiths, hammerers and machinists work in the dilapidated building. They carry blanks by hand from the warehouse to the furnaces and from the furnaces to the hammers. Due to the lack of stamping presses of the necessary capacity, forgings weighing more than 20 kg are made by the free forging method, with a wide margin for machining, as a result of which hundreds of tons of metal are wasted in shavings. A ton of forgings here costs more than 2000 rubles. A kilometer distant from this enterprise another plant -- an excavator construction plant -- is situated. Its forge shop is located in a nice brick building. However, even in this building the equipment is poor and does not correspond to the requirements of production. Hydraulic

Specialized Forge Shop (cont'd)

and friction presses, 100 to 500-ton air and pneumatic hammers of obsolete design -- this is about all it has.

The forge sections at the Experimental-mechanical and Electromechanical Plants, at the Yakhromskaya Textile Mill and other enterprises in the rayon look even more obsolete. Some of them contain primitive heating furnaces and old, low-capacity presses, and others -- forge furnace and anvil.

What can be done about this situation? It would be possible to transfer the press-working of large parts to other plants in the Moscow Oblast Sovnarkhoz, but these plants also lack the necessary capacity. "It was long ago decided," said Chief Engineer Vorobtsev of the Excavator Plant, "to transfer 15 categories of large blanks to be press-worked at other enterprises. But this decision is not being carried out. This year the Moscow Oblast Sovnarkhoz has distributed only four parts designations to other enterprises. The remaining blanks are being produced by us by the free forging method. What is this leading to? For

Specialized Forge Shop (cont'd)

example, the 512318B pinion weighs about 30 kg, while the blank for it weighs about three times as much. And we have thousands of such parts..."

Solving the problems of mechanization and automation of production, the specialists of the Dmitrovskiy enterprises came to the following conclusion: instead of the existing obsolete blacksmith shops, one specialized forge shop should be built in the rayon, containing modern equipment. "The proposal is quite intelligent," Chief Technologist Dubov of the Milling Machine Plant says,. "Such a forge shop would make work easier for the workers and would decrease the cost of production considerably." The question of a rayon forge shop was discussed at meetings of party organizations. In the opinion of the Communists from the metal-working enterprises, it is expedient to build the unified forge shop at the Dmitrovskiy Excavator Plant.

The effectiveness of the specialized shop will be tremendous. At the Excavator Plant alone it will be possible to save at least 500 tons of metal per year, about 200 tons of technological fuel, and labor in producing excavators will be decreased by more than 20,000 norm-hours.

Specialized Forge Shop (cont'd)

Yearly savings will be more than one million rubles. Hundreds of thousands of rubles of savings will be made at the other industrial enterprises of the rayon. In addition, the necessity to construct a new forge shop at the Milling Machine Plant will disappear. This will amount to several million rubles more in savings. Expenditures for constructing the specialized forge shop will be amortized within one year. Unfortunately the proposal by the Dmitrovskiy men has gotten nowhere. The directors of the oblast sovnarkhoz are keeping silence on this question for some reason. A few weeks ago the Dmitrovskiy City Party Committee reminded them once more of the blacksmith shops in the dilapidated buildings and the specialized forge shop, but there has been not a word in reply. (Leninskoye Znamya, 5 October 1960. Full translation)

New Boring Machine

These days a signal event is taking place at one of Siberia's largest machine construction enterprises, the Plant imeni Yefremov. At this plant--our country's first heavy machine tool with programmed control, the NR-1P: the Novosibirsk boring machine, the first programmed one. It is called the harbinger of the machine tools of the future. This reflects reality quite accurately. One might say that programmed machine tools are no longer unique in Soviet and world industry. This is true only in respect to small and medium-size machines which produce hundreds of parts per shift. Let us assume that one of these hundred is defective. This is not a catastrophe. Things are quite different on a heavy machine tool, such as the one being produced by the Yefremov men. One part costs sometimes tens or hundreds of thousands of rubles. It would be a great loss to ruin such a part. The program mechanism cannot err.

About two years ago, when the plant collective began to cope with this new task, there were no specialists at the plant in this field. However, there was no lack of young and talented engineers and technicians, fighters for

New Boring Machine (cont'd)

technological progress and daring innovators: Yakov Brovman and V. Rusayev, P. Slezinger and N. Zemerov, G. Makarov, L. Samsonov and others. These persons formed a new design subdivision -- the Program Mechanism Bureau. The workers in this bureau conscientiously studied all systems of programmed control existing at that time, and not one of them was suitable for a heavy machine tool. The designers struck out on their own. They stubbornly sought a system which would be flawless in the sense of reliability and accuracy.

The many months of search were not in vain. Today it is already possible to see the first example of a system for a heavy machine tool. It consists of the "program preparation mechanism" and the "execution mechanism" (or, as the designers put it, "program processing mechanism"). The "preparation mechanism" is located out of the shop, far from the machine tool, in the plant's technological section. It reminds one somewhat of a small electronic calculator. With the aid of a ten-key panel, the plans, transmitted in a number code, are introduced into the "memory block".

New Boring Machine (cont'd)

Then the program is recorded onto five-track tape. After this the bobbin and the tape are taken to the shop and placed in the "execution mechanism", which is set up near the machine tool. This is a unique tape recorder. The electricity is turned on, the tape begins, and the mechanisms begin to operate on signals from it: the spindle turns, the mandrel rises and falls, the radial support moves out, the seven-meter column is displaced, the emulsion feed is turned on and off, etc. What are the chief advantages of program control for heavy machine tools? Program control on small and medium size machine tools sharply increases the productivity of labor and decreases the number of operating personnel. On a heavy machine tool the advantages are quite different. With manual control only simple surfaces can be machined on a heavy machine tool. This limitation holds back the designers of new machinery. They often argue with the technologists, who find it difficult to execute bold and original proposals. This holds particularly true for the large "basic" parts weighing tens of tons. Programming removes this obstacle to a great extent. It is

New Boring Machine (cont'd)

possible to record on tape a machining process of great complexity, and the machine tool will carry out this assignment. This is the heart of technological progress in many branches of industry where the NR-1P will be used... The NR-1P machine tool has already been assembled. The program mechanism is also ready. Testing is being conducted on the various components and systems. The machine tool is to be completed as a gift for the 43rd anniversary of the October Revolution. By the third year of the Seven Year Plan the plant will begin series production on these remarkable machines. (Kazakhstanskaya Pravda, 11 September 1960. Full translation)

Standardized Machine Tool Parts

The experience of the Moscow machine tool builders has clearly shown the advantages of aggregates and automatic lines which have been assembled from so-called standardized components and parts. They not only raise the profitability of machinery construction enterprises but allow them to save time in shifting from the production of one type of product to another. The significance of this, right now, when the country has taken a firm course toward large-scale automation and mechanization of production processes, cannot be overestimated. This is why the July Plenum of the CC of the CPSU recommended that all party organizations disseminate everywhere the experience of the machinery construction plants of the Moscow City Sovnarkhoz, which are making broad use of standardized components and aggregates in creating new machine tools and automatic lines.

The experience is quite instructive. That which the Muscovites have done makes it possible for them to assemble at present new aggregate machine tools with 70% standardized components. They have made a great contribution toward the creation of automatic and assembly lines from un-

Standardized Machine Tool Parts (cont'd)

ified elements. The collective of the Machine Tool Design Bureau No 1 has already designed about 500 components and parts for machine tools for the mechanical machining of metal. Thanks to this the time required to design such machinery has been decreased three to four times, and it is possible to produce them almost twice as rapidly as special machine tools of original design. Large-scale series production of components has also decreased labor expenditures by several times. All this promises the national economy many benefits, and this is evident in the example of the Plant imeni Ordzhonikidze alone. Using the new, progressive method, in the past three years, without a substantial increase in production capacity, it has tripled the production of machine tools and automatic lines, considerably decreasing their production cost at the same time.

Right now the machine tool builders of the capital have undertaken the fulfillment of even greater tasks. They have promised to produce 450 automatic lines during the Seven Year Plan -- 50 more than provided for in the plan. The leading design organizations operating in this field are

Standardized Machine Tool Parts (cont'd)

increasing the technological level of these lines. Automatic lines for machining body parts, created by the machine tool design bureau No 1, have been improved considerably. They have several parallel production lines, which allows many more operations to be carried out and a backlog to be automatically built up. Let us take for an example the system for machining ZIL motor blocks which is planned for this plant. Its four lines will consist of 85 machine tools, automatically carrying out 1,254 operations! The use of these lines will free 166 persons, and labor productivity will increase by almost ten times. All expenditures connected with the creation of these lines will be amortized in less than two years.

At the First State Bearing Plant an automatic shop is being set up to produce cardan bearings of four type-sizes. The automatic lines will free 700 persons, save 400 tons of metal and about 15 million rubles per year. Now the task consists in making sure that the progressive method of building machine tools becomes in a short period of time the attainment of our entire national economy. In-

Standardized Machine Tool Parts (cont'd)

initial successes in standardizing components and parts have been achieved in certain other sovnarkhozes: in the Khar'kovskiy, Belorussian, Tatarskiy, Kuybyshevskiy. The Scientific Research Institute of Technology and Production Organization, the Scientific Research Institute of Automation Technology, the designers of "Uralmash" and many others are working on these problems. This is cause both for joy and caution. Although the paths of creation should always be varied, lack of coordination in setting up new parts standards for machine tool construction could cause certain harm.

Will it be such a good thing if one consumer plant possesses components for a machine tool, produced in Moscow, Khar'kov, Minsk and other cities? Among machine constructors a voice is being raised more and more persistently in defense of the centralized production of parts standards and intelligent plant specialization. For example, the Plant imeni Ordzhonikidze may eventually satisfy the basic needs for components for aggregate machine tools and automatic lines produced from them, and its design bureau could aid in their assimilation. The Khar'kov Small Aggregate

Standardized Machine Tool Parts (cont'd)

Machine Tool Plant could easily become the main supplier of small-scale series production. This would not only speed up things, but even more important, effect great savings. The central direction for the development of standardization of components and parts was recently assigned to the Main Metal-cutting Machine Tool Institute -- the Experimental-scientific Institute of Machine Tool Construction. This institute must rapidly absorb the experience gained here and abroad, make proposals on a better organization of parts standards production, and it must work out a clear-cut system of unified type-sizes and efficiency. It is surprising that the technical council conference which took place here a few days ago did not devote sufficient attention to these important problems. The Experimental-scientific Institute of Metal-cutting Machine Tool Construction has let this important state matter ride for too long a time. It is time to make up for lost ground. Experience provides many other problems connected with standardization and unification of components and parts. First of all it is necessary to effect a significant expansion of the scope of their applicat-

Standardized Machine Tool Parts (cont'd)

ion. Actually very little has been done to make aggregate grinding machines and lathes, casting, forge-press and wood-working machinery. It is also extremely important to make use of the principles of standardization for the effective application of program control for the production of all types of shaped parts. All this obligates the scientific research and design organizations to take a firm grasp of these problems connected with standardization in order to reach a solution. We assume that the State Planning Commission of the USSR will devote serious attention to these problems, as well as the USSR Council of Ministers State Committee on Automation and Machine Construction, and the Committee on Weights, Standards and Measuring Instruments. (Ekonomicheskaya Gazeta, 17 September 1960. Partial translation)

MISCELLANEOUS

Industrial Development in Armenia

The creation of new enterprises in our republic and the expansion and basic reconstruction of enterprises already in operation have made it possible to make a considerable expansion in variety and to increase the total industrial production. If the total volume of industrial production in Armenia for 1965 is increased 580% in comparison with 1950, the individual branches of industry -- chemicals, machine tool construction, general machine construction, electrotechnical industry, instrument industry, non-ferrous metallurgy and several others -- will develop greatly during this period. In 1965 the production of metal-cutting machine tools will increase by 16 times in comparison with 1950, that of hydraulic pumps -- 17, -- motor vehicle spare parts -- 14, electric motors up to 100-kw capacity -- 50, instruments -- 67. The production of compressors, transformers, generators with a capacity of up to 100-kw and cable production will also increase considerably. An increase in efficiency, speed and accuracy, decrease in

Industrial Development in Armenia (cont'd)

weight, size and cost, improvement in appearance and other qualitative indices of machine tools, machinery, instruments and other products are an integral condition for the development of technology and production. The production of non-efficient and low-quality products causes great harm to the entire national economy and the interests of the workers.

After the June Plenum of the CC of the Party, the sovnarkhoz of the Armenian SSR reviewed and decided to remove from production in 1959-1960 eight types of machine tools, machinery and instruments of obsolete design and to replace them with improved technology. In 1959 the 2135 vertical-drilling machine produced by the Oktemberyan-skiy Machine Tool Plant was removed from production and replaced by the new model 252 radial-drilling machine, the design of which was worked out by the Special Design-technological Bureau of the Machinery and Machine Tool Construction Administration of the sovnarkhoz. Last year the five-ton crank press produced by the Leninakanskiy Forge-press Equipment Plant was replaced by a new 6.3-ton press with an increased number of double-strokes and an automatic mechanism for

Industrial Development in Armenia (cont'd)

feeding material to the press. As a result of careful checking and work in evaluating the technological level of 140 designations of machine tools, machines and instruments produced by the enterprises of the sovnarkhoz, 66 type-sizes of products are slated for replacement and modernization, which do not correspond to the modern level of technology in their technical-economic indices. Of the above 66 type-sizes, 38 are to be removed from production in 1960, 15 in 1961, and 13 in 1962. They will all be replaced by new models, improved and more economical.

Between July 1959 and the present six designations of obsolete articles have been removed from production, among which the ZhES-4 mobile electric power station produced by the Armelektrozavod has been replaced by the new AD-5 mobile diesel electric power station. To replace the SGS-4.5, SG-35, SG-60 and SGT generators which have been partially removed from production, production has begun on the new YeSS synchronous generator, which is of improved design and has automatic tension regulation. It is 25% lighter than the old generator. The 20-ton four-column press produced by the Leninakanskiy Forge-press Equipment Plant has been

Industrial Development in Armenia (cont'd)

replaced by a new 25-ton press. Production has stopped on several types of wire, drafting equipment and certain other articles.

At the Yerevan Hydraulic Pump Plant, in place of centrifugal pumps on a common cast-iron plate, production has begun on three types of single-block pumps with a considerable decrease in size and weight, with no loss in the hydraulic parameters of the former pump types. As a result the plant will save up to 40% in metal and labor expenditures will be decreased considerably. The total yearly savings achieved by this will be two million rubles or more at the plant. At present the scientific-research institutes, design organizations and plant design bureaus are doing much work in the development of new types of high-speed machine tools, electrical machinery, aggregates and instruments of various designations. The Armenian branch of the All-Union Scientific Research Institute of Electromechanics has developed 11 series and individual types of generators of normal productive frequency, high frequency transformers,

Industrial Development in Armenia (cont'd)

seven types of electrical units, complex mechanisms and apparatus, seven new power transformers as well as various types of wire, cable, and other products. The Special Design-technological Bureau of the Machine and Machine Tool Construction Administration is developing a series of lathes, small drilling machines, high accuracy machines and others. The Armelektrozavod Chief Designer Section is developing and modernizing electrical machinery and equipment. Design sections created after the June Plenum of the CC of the Party at many industrial enterprises are developing and modernizing the products produced by the enterprises. During the past year new designs of lamps, measuring and control instruments, various mechanisms and devices have been produced. One of the important problems of technological progress is the assimilation of the production of new types of synthetic materials with high technical-economic indices. The Kirovakanskiy Scientific Research and Design Institute has developed a technique of producing synthetic fibre, "yeranit", based on polyvinyl alcohol, which can be extracted as a result of processing natural gas. It has also developed a technique of producing electrical insul-

Industrial Development in Armenia (cont'd)

ation film for use in the electrotechnical industry.

The Chemical Scientific Research Institute of the sovnarkhoz, in working out the problem of the complex processing of nepheline ~~[silica]~~ [silica], obtained valuable new chemical products. In the resolutions of the July Plenum of the CC of the Party (1959) it was stated that "there are still many enterprises which are producing obsolete equipment and products, although analogous plants and factories have incorporated new highly efficient technological processes and have organized the production of improved machine tools, machinery, mechanisms and devices of the same designation." This refers also to certain enterprises in our sovnarkhoz.

The Yerevan Machine Tool Plant imeni Dzerzhinskiy has been producing 1B61 and 1L61 screw-cutting lathes for a long time. These possess certain deficiencies in design. The plant management is quite aware of these defects, but it is not hurrying to modernize its machine tools. The plan for new technology for 1960 provides for the BKS-5 tower crane to be removed from production. This

Industrial Development in Armenia (cont'd)

is produced by the Yerevan Hoist-transport Equipment Plant and should be replaced by the new BK-370, which is considerably more stable, faster, more easily transported and does not require great expenditures of time in assembly. However, the plant management has taken no steps to obtain the blueprints. As a result of this the test model of the new crane has not yet been completed. Industrial workers of the republic are vowing to fulfill the resolutions of the July Plenum of the CC of the Party with honor for the further improvement of production and the creation of new types of highly productive machinery which correspond to the modern level of technology. (Yerevan, Kommunist, 31 July 1960. Full translation)

Introduction of New Technology

On the recommendation of the Party city committee various chairs from the technical schools have assumed the leadership of allied enterprises in order to speed up and facilitate the assimilation of new technology and techniques. The Machine Tool Plant imeni Kirov is being aided by the Chair of Machine Construction Technology of the Polytechnical Institute and the Electronics, Automatics and Telemechanics Institute of the Georgian Academy of Sciences: the Electric Locomotive Plant and the "Elektrodvigatel'" Plant -- by the Electrotechnical Industry Scientific Research Institute; the Motor Vehicle Repair Plant -- by the Motor Vehicle Transport Operation Chair of the Polytechnical Institute; the "Plastmass" Plant -- by the Chemical Institute of the Georgian Academy of Sciences, etc. (Ekonomicheskaya Gazeta, 12 October 1960. Partial translation)